REMARKS

Claims 33, 35-38, 91 and 93-95 are pending in this application, are rejected and new issues of patentability are presented. By this Amendment, claims 33, 35, 38, 91 and 93 are amended and claims 34 and 92 are canceled without prejudice to, or disclaimer of, the subject matter recited therein. No new matter is added. Reconsideration and prompt allowance of the application based on the above amendments and the following remarks is respectfully requested.

The courtesies extended to Applicants' representative by Examiner Weiss at the interview held June 27, 2008, are appreciated. The reasons presented at the interview as warranting favorable action are incorporated into the remarks below, which constitute Applicants record of the interview.

Former claims 33-38 and 91-95 were rejected under 35 U.S.C. §103 as being unpatentable over JP 2001-339100 to Yasutimi (hereinafter "Yasutimi"); U.S. Patent No. 6,222,207 to Carter-Coman et al. (hereinafter "Carter-Coman"); U.S. Patent No. 4,574,470 to Burt (hereinafter "Burt"); and U.S. Patent No. 5,774,829 to Murasato et al. (hereinafter "Murasato"). This rejection cannot be made against the amended claims because the references do not suggest, teach or otherwise render Applicants' claims to only Ti as a major component obvious.

I. Applicants' Amended Claims

The pending claims relate to the third invention this is described at pages 7 and 30-41 of the present specification. The discussion at pages 30-41 recognizes that there is a eutectic reaction between silver and silicon which can migrate up from the substrate. The specification recognizes that contamination of the reflective layer is caused by the eutectic reaction. Eutectic without more is merely mixing of metals under certain heat conditions. The claims as they now stand require that the only Ti as a major component blocking layer

block the silicon. Applicants identified the problem of silicon contamination which reduces reflectivity of a light emitting device and solved the problem as now claimed.

II. Discussion of the References

In Yasutimi, there is no blocking layer, but otherwise most of the claimed elements. Yasutimi's intermediate layer 32 prevents Eutectic reaction of the Au reflection layer 33 and the Si substrate, and it does not present outwelling. It is also composed of Ag, Cu, Ni, Pd or Pt, and not Ti.

In Carter-Coman, there is use of a nickel-vanadium diffusion blocking layer 36 which blocks solder components such as lead silver, etc from outwelling to the Ag reflection layer. These are metals which may be subject to eutectic migration. The purpose of Carter-Coman is to prevent the metallic materials of the solder from reaching the reflective layer and decreasing reflectivity. Carter-Coman does not recognize that silicon can be blocked or that silicon reaction with a reflective layer degrades reflectivity.

Burt is directed to a very large scale integrated device. It is disclosed as a wafer scale silicon semi-conductor chip. A wafer scale was known to be several inches in diameter. This is totally unlike light-emitting diodes, and is known as very large scale integration (VLSI) technology. See the attached Chapter 8 from *Semiconductor Silicon Crystal Technology* by Fumio Shimura. In Burt, there is disclosure of Ni V (nickel vanadium) and the Examiner cites col. 6, lines 41-47 which states that the nickel vanadium layer 98 acts as a barrier to prevent silicon diffusion to the top layer 100 of gold. Burt also suggests that by limiting temperature to less than 360°C, formation of a gold/silicon eutectic is avoided. Burt also suggests such a eutectic may be desirable in certain applications. Burt does not use gold for reflecting because this is not a light emitting device.

According to Applicants' specification, the eutectic condition occurs on heat treatment of the LED, and the purpose of the only Ti as a major component blocking layer is to prevent silver silicon eutectic reaction. In Burt, the final configuration of the wafer sized device

(VLSI) is shown in Fig. 7b. Layer 38 is the semiconductor (SI). The layer 98 is the nickel vanadium, and layer 100 is the AU alloy. The top layers 104 and 106 are completely irrelevant to the light emitting diode art. Applicants are first to recognize that the silicon migration to the reflected layer is a eutectic reaction which reduces reflectivity on a LED.

III. The Prior Rejection

The Examiner reasoned that the LED as taught by Yasutimi which lacks a silicon blocking layer can be modified by one of skill in the art by Carter-Coman which teaches a nickel containing layer for the purpose of blocking solder components such as lead and tin. Carter-Coman, however, does not teach the use of a blocking layer having only Ti as a major component as now claimed for the purpose of blocking silicon. The Examiner reasoned that since Carter-Coman teaches blocking, that Carter-Coman when combined with Burt produces a device which will inherently block silicon. The teaching of blocking was found in Burt, which is from the VLSI art and relates to integrated circuits which is a completely different field than the development of double heterostructure aluminum gallium indium phosphorous type light emitting devices (claim 33). Burt merely teaches that silicon can be blocked from contaminating a gold layer in an entirely different vice and for a different reason. Burt's teaching has no relationship to blocking of silicon contamination of gold for the purpose of improving reflectivity in a light emitting device.

The Examiner's rejection therefore was based upon the idea that the person skilled in the art would combine Yasutimi with Carter-Coman which blocks something other than the claimed silicon. Once this combination is made, then the Examiner argued that the created device inherently blocks silicon. However, within Yasutimi and Carter-Coman, there is no suggestion at all of blocking of silicon in order to improve reflectivity. Without this suggestion, teaching or motivation, there is simply no reason to combine Yasutimi and Carter-Coman, who does not teach only Ti as a major component when taken together do not

recognize that a Ti containing layer can be used to block silicon for the purpose of improving reflectivity in a light emitting device as now claimed by Applicants.

It was only the Applicants who recognized that silicon contamination of the reflective layer and therefore reduced reflectivity was a problem, and it was only the Applicants who recognized that in the light emitting device, the silicon could be blocked by use of the Ti blocking layer.

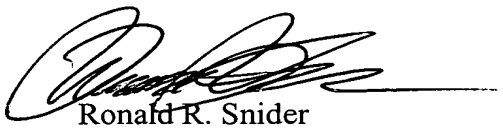
For the forgoing reasons, the combination of Yasutimi, Carter-Coman and Burt along with the doctrine of inherency is inapplicable to the now claimed only Ti as a major component.

IV. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



Ronald R. Snider
Registration No. 24,962

RRS/hms

Date: August 18, 2008

OLIFF & BERRIDGE, PLC
P.O. Box 320850
Alexandria, Virginia 22320-4850
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE AUTHORIZATION
Please grant any extension necessary for entry;
Charge any fee due to our Deposit Account No. 15-0461